



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/652,150 | 08/31/2000 | Kazuhiro Hoshino | SON-1894 | 2607 |

7590 06/29/2005

Ronald P. Kananen, Esq.
RADER, FISHMAN & GRAUER
The Lion Building
1233 20th Street, N.W., Suite 501
Washington, DC 20036

EXAMINER

WILSON, JACQUELINE B

ART UNIT PAPER NUMBER

2612

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,150

Applicant(s)

HOSHINO ET AL.

Examiner

Jacqueline Wilson

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2 and 4-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 2, and 4-9 have been considered but are moot in view of the new ground(s) of rejection.

Please see new ground of rejection below.

Claim Objections

2. Claim 11 is objected to because of the following informalities: line 1, "claim 1" should be changed to --claim 10--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuto (EP 11191865) and Majumdar et al (US 6,187,522).**

Regarding Claim 2, Kazuto teaches a camera module comprising a substrate (fig. 1, element 18) provided with a through-hole for light transmission (see fig. 1), an imaging element having a light receiving portion (element 12), wherein the imaging

element is flip chip mounted on a first side of the substrate (see fig. 1) such that the light receiving portion is exposed through the through-hole (fig.1 shows a through hole for exposing the CCD), and a lens unit (17) mounted on a second side of the substrate so as to cover a space over the light receiving portion of the imaging element. However, Kazuto does not specifically disclose the substrate is flexible. Majumdar et al teaches that flexible substrates are notoriously well known in the art for use in imaging products (col. 1, lines 25+). It is advantageous to use flexible substrates for the purpose of providing ease of transport, conveyance, and manufacturing (col. 1, lines 26+). Therefore, it would have been obvious to one having ordinary skill in the art to use a flexible substrate in Kazuto for easy manufacturing of the device.

Claim 10 is analyzed and discussed with respect to Claim 2 (wherein the optical element having an optical portion is the imaging element; referred to as CCD). Furthermore, Kazuto teaches a system module (fig. 1, 19) connected to the substrate in the optical module, wherein integrated circuits are inherently mounted on the system module for proper processing of signals.

Regarding Claim 11, Kazuto teaches the optical element is a light emitting element (referred to as CCD having pixels).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

Art Unit: 2612

subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuto, and in further view of Sako et al. (US 6,724,503).

Regarding Claim 6, Kazuto teaches an imaging device comprising a substrate (fig. 1, element 18) having a through-hole (see fig. 1) for light transmission, and an imaging element (12) having a light receiving portion on a first surface, wherein the imaging element is flip chip mounted (see fig. 1) on one side of the substrate such that the light receiving portion is exposed through the through-hole. However, Kazuto does not specifically disclose a shielding layer on a back surface of the imaging element, wherein the back surface is opposite to the first surface of the imaging element having the light receiving portion. Sako et al teaches covering a light shielding layer (fig. 4, elements 61 and 4) on the reverse side of an image sensor board (6). This blocks out certain amounts of light that passes through the image sensor board thereby enhancing the image reading quality provided by an image sensor (col. 2, lines 2-6). Therefore, it would have been obvious to modify Kazuto with Sako et al by including a light shielding layer on the back surface of the imaging element for the purpose of prevent unwanted light from effecting the accumulated charge.

Claim 5 is analyzed and discussed with respect to Claim 6. (See rejection of Claim 6 above.)

Regarding Claim 7, Kazuto does not specifically disclose a black resin applied to the periphery of the imaging element. However, Sako et al teaches it is well known to use a casing (4) formed of a black synthetic resin applied to the periphery of the imaging element (see fig. 4) so as to cover the side surface and the back surface of the imaging element, a part of the resin constituting the shielding layer (see fig. 4, elements 61 and 4). This prevents unwanted light from affecting the quality of the image signal. By including this black resin on the periphery of the imaging element of Kazuto including the connecting portion between the substrate and the imaging element by the flip chip mounting provides light restriction from all sides of the imaging element except for the side for receiving incoming light. Therefore, it would have been obvious to one having ordinary skill in the art to include a black resin applied to the periphery of the imaging element including the connecting portion between the substrate and the imaging element.

Regarding Claim 8, Kazuto teaches camera module comprising a substrate (fig. 1, element 18) having a through-hole (see fig. 1) for light transmission, an imaging element (12) having a light receiving portion on a first surface of the imaging element, wherein the imaging element is flip chip mounted (see fig. 1) on a first side of the substrate such that the light receiving portion is exposed through the through-hole, and a lens unit mounted on a second side of the substrate (17). However, Kazuto does not specifically disclose a shielding layer on the back surface of the imaging element. Sako et al teaches covering a light shielding layer (fig. 4, elements 61 and 4) on the reverse side of an image sensor board (6). This blocks out certain amounts of light that passes

Art Unit: 2612

through the image sensor board thereby enhancing the image reading quality provided by an image sensor (col. 2, lines 2-6). Therefore, it would have been obvious to modify Kazuto with Sako et al by including a light shielding layer on the back surface of the imaging element for the purpose of prevent unwanted light from effecting the accumulated charge.

Claim 9 is analyzed and discussed with respect to Claim 8. (See rejection of Claim 8 above.)

5. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuto (EP 11191865), Majumdar et al (US 6,187,522), and in further view of Sako et al. (US 6,724,503).

Claim 4 is analyzed and discussed with respect to Claim 6. (See rejection of Claim 6 above.)

Conclusion

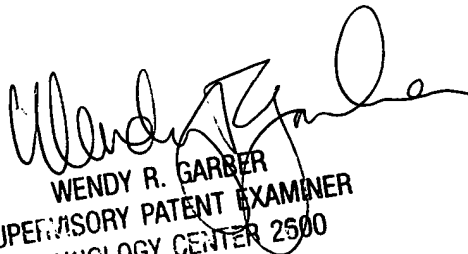
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacqueline Wilson whose telephone number is (571) 272-7322. The examiner can normally be reached on 8:30am-5:00pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW
06/15/05


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2500